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avives@eresmas.net
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Local and effective: Two projects of butterfly farming in Cambodia and Tanzania (Insecta: Lepidoptera)

T. van der Heyden

Abstract

The projects "Banteay Srey Butterfly Centre" in Cambodia (Asia) and "Zanzibar Butterfly Centre" in Tanzania (Africa) are presented as models of sustainable butterfly farming to support local communities.
KEY WORDS: Insecta, Lepidoptera, butterfly farming, sustainability, conservation, development, tropics, Cambodia, Tanzania.

Local y efectivo: Dos proyectos de cría de mariposas en Camboya y Tanzania (Insecta: Lepidoptera)

Resumen

Los proyectos "Banteay Srey Butterfly Centre" en Camboya (Asia) y "Zanzibar Butterfly Centre" in Tanzania (África) se describen como modelos de cría sostenible de mariposas en apoyo para comunidades locales.
PALABRAS CLAVE: Insecta, Lepidoptera, cría de mariposas, sostenibilidad, conservación, desarrollo, trópicos, Camboya, Tanzania.

Lokal und effektiv: Zwei Schmetterlingsfarm-Projekte in Kambodscha und Tansania (Insecta: Lepidoptera)

Zusammenfassung

Die Projekte "Banteay Srey Butterfly Centre" in Kambodscha (Asien) und "Zanzibar Butterfly Centre" in Tansania (Afrika) werden als Modelle nachhaltig betriebener Schmetterlingsfarmen zur Unterstützung lokaler Gemeinschaften vorgestellt.
SCHLÜSSELWÖRTER: Insecta, Lepidoptera, Schmetterlingsfarm, Nachhaltigkeit, Erhaltung, Entwicklung, Tropen, Kambodscha, Tansania.

Introduction

As pointed out before, farming and/or exhibiting tropical butterflies could offer a sustainable opportunity for local (rural) communities in tropical countries to increase and diversify their income (SAMBHU & VAN DER HEYDEN, 2010; VAN DER HEYDEN, 2011).

Two butterfly projects, which are working closely together and therefore could be named "sister projects", are the "Zanzibar Butterfly Centre" (ZBC) which started in 2006 near Jozani National Park on the island of Unguja, Zanzibar, a semi-autonomous part of Tanzania (Africa) and the "Banteay Srey

Butterfly Centre" (BBC), located near Phnom Kulen National Park in the Siem Reap Province in Cambodia (Asia), which started in 2008.

Both centres offer large netted tropical exhibition areas, where visitors can observe hundreds or even thousands of free-flying native butterflies from Tanzania and Cambodia, respectively.

But exhibiting butterflies is only one part of the activities of the ZBC and the BBC. The ZBC is working closely together with Jozani Chwaka Bay National Park, Jozani Environmental Conservation Association and Pete Development Association. Both centres are focussing on providing support for local poverty alleviation and conservation projects investing revenues from visitor admissions.

On top of that, both centres are working together with local rural communities, where the specimens exhibited in the centres are raised by local farmers. Pupae are bred for export, too.

Local farmers conserving nature and gaining strength/self-confidence

As the butterfly farms are located close to areas of natural forests, they provide an (economic) opportunity for local communities to protect and conserve the surrounding natural habitats instead of destroying them for agricultural purposes.

Figures 1-4.– 1. A mating couple of *Graphium agamemnon* (Linnaeus, 1758) (Papilionidae) at the "Banteay Srey Butterfly Centre". **2.** A breeding cage of a farmer of the "Banteay Srey Butterfly Centre" farming project. **3.** Specimens of *Cethosia cyane* (Drury, [1773]) (Nymphalidae, Heliconiinae) emerging at the "Banteay Srey Butterfly Centre". **4.** *Troides helena* (Linnaeus, 1758) (Papilionidae) at the "Banteay Srey Butterfly Centre" (Photos: Ben Hayes).

In order to farm butterflies for a long(er) period of time, it is necessary to protect the wild populations of the reared species. Only small parts of them are extracted from the wild. Females are caught and placed in small breeding cages, where they lay their eggs on the food plants of the larvae.

The eggs are collected and put into small containers. After the caterpillars have hatched, they are transferred to their respective food plants in the nursery. After pupation the pupae are "harvested" and can be sold. In order to prevent unnecessary collection from the wild populations of the farmed species a part of the reared pupae is used by the farmers to start a new cycle in the breeding cages.

As the local butterfy farmers realize that they are able to gain an income by rearing butterflies and protecting nature at the same time, the benefits of conservation are clearly recognized by them and their local communities. Besides, they are doing their butterfly business "at home" and are able to fulfill domestic duties and care for their children without any problem.

In Tanzania eighteen farmers in the village of Pete were trained by the ZBC. At present sixteen farmers from surrounding villages are participating in the project. The number should increase to approximately twenty-five by the end of 2011. The farmers in Tanzania set up a democratic Farmer Council to discuss different matters and to give advice to new farmers.

In Cambodia the BBC provided training for farmers from five nearby villages as well. At present twenty-one families are involved in the farming project. The number should increase to thirty-five by the end of 2011.

Species farmed

In both countries a variety of butterfly species is actually reared and sold by the farmers of the projects of the BBC and ZBC (see Table I).

Species farmed in Cambodia by the BBC	**Species farmed in Tanzania by the ZBC**
Atrophaneura aristolochiae (Fabricius, 1775)	*Acraea natalica* Boisduval, 1833
Attacus atlas (Linnaeus, 1758)	*Acraea zetes* (Linnaeus, 1758)
Catopsilia pomona (Fabricius, 1775)	*Amauris niavius* (Linnaeus, 1758)
Catopsilia scylla (Linnaeus, 1763)	*Amauris ochlea* (Boisdual, 1847)
Cethosia cyane (Drury, [1773])	*Bebearia mardania* (Fabricius,1793)
Charaxes solon (Fabricius, 1793)	*Belenois thysa* Hopffer, 1855)
Danaus genutia (Cramer, [1779])	*Byblia anvatara* (Boisduval, 1833)
Delias pasithoe (Godart, 1816)	*Byblia ilithya* (Drury, [1773])
Dysphania sagana (Druce, 1882)	*Catopsilia florella* (Fabricius, 1775)
Elymnias hypermnestra (Linnaeus, 1763)	*Charaxes acuminatus* Thurau, 1903
Elymnias nesaea (Linnaeus, 1758)	*Charaxes brutus* (Cramer, [1779])
Euploea core (Linnaeus, 1758)	*Charaxes candiope* (Godart, [1824])
Euploea mulciber (Cramer, [1777])	*Charaxes pollux* (Cramer, [1775])
Euthalia aconthea (Cramer, [1779])	*Danaus chrysippus* (Linnaeus, 1758)
Euthalia lubentina (Cramer, [1779])	*Euphaedra neophron* (Hopffer, 1855)
Graphium agamemnon (Linnaeus, 1758)	*Eurema brigitta* (Stoll, [1780])
Graphium antiphates (Cramer, [1775])	*Eurema floricola* (Boisduval, 1833)
Graphium doson (Felder, 1864)	*Eurytela dryope* (Cramer, [1775])
Graphium sarpedon (Linnaeus, 1758)	*Euxanthe wakefieldi* (Ward, 1873)
Hebomoia glaucippe (Linnaeus, 1758)	*Euxanthe tiberius* Grose-Smith, 1889
Hypolimnas bolina (Linnaeus, 1758)	*Graphium angolanus* (Goeze, 1779)
Junonia almana (Linnaeus, 1758)	*Graphium antheus* (Cramer, [1779])
Lebadea martha Fabricius, 1787	*Graphium leonidas* (Fabricius, 1793)
Lexias dirtea (Fabicius, 1793)	*Graphium porthaon* (Hewitson, 1865)
Papilio clytia (Linnaeus, 1758)	*Graphium policenes* (Cramer, [1775])
Papilio demoleus Linnaeus, 1758	*Hypolimnas misippus* (Linnaeus, 1764)

Papilio demolion Cramer, [1776]	*Junonia natalica* (Felder & Felder, 1860)
Papilio helenus Linnaeus, 1758	*Junonia oenone* (Linnaeus, 1758)
Papilio memnon Linnaeus, 1758	*Junonia terea* (Drury, [1773])
Papilio polytes Linnaeus, 1758	*Melanitis leda* (Linnaeus, 1758)
Parantica aglea (Stoll, 1781)	*Papilio dardanus* Brown,1776
Parthenos sylvia (Cramer, [1775])	*Papilio demodocus* Esper, 1798
Polyura athamas (Drury, [1773])	*Papilio nireus* Linnaeus,1758
Tirumala septentrionis (Butler, 1874)	*Phalanta phalanta* (Drury, [1773])
	Salamis anacardii (Linnaeus, 1758)
	Vanessa cardui (Linnaeus, 1758)

Table I.– Butterfly species reared by the farmers in Cambodia (BBC) and Tanzania (ZBC).

Conclusion

Both projects, the "Banteay Srey Butterfly Centre" in Cambodia and the "Zanzibar Butterfly Centre" in Tanzania, were set up near protected areas. They assist with their conservation and help to reduce pressure on natural resource use via the creation of local jobs offering an alternative livelihood and poverty alleviation for families from surrounding local communities.

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T. v. d. H.
Immenweide, 83
D-22523 Hamburg
ALEMANIA / *GERMANY*
E-mail: tmvdh@web.de

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